WHAT IS CLAIMED IS:

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1. A method for analyzing a circuit with transmission lines, comprising the steps of:

based on coupling factors, determining which sources influence each of a plurality of transmission lines;

computing transmission line parameters based on the sources which influence each transmission line;

analyzing a transient or frequency response for each transmission line by segmenting each line to perform an analysis on that line; and

repeating the step of analyzing using waveforms determined in a previous iteration until convergence to a resultant waveform has occurred.

- 2. The method as recited in claim 1, wherein the step of determining which sources influence each of a plurality of transmission lines includes calculating coupling factors for each transmission line based on neighboring sources.
 - 3. The method as recited in claim 1, further comprising the step of modeling the transmission lines in terms of voltage and/or current sources.

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- 4. The method as recited in claim 3, wherein the step of modeling includes employing lumped models.
- 5. The method as recited in claim 3, wherein the step of modeling includes employing method of characteristics models.
- 6. The method as recited in claim 1, further comprising the step of performing an analysis of the transmission lines based on an electronic form of an electrical circuit.
- 7. The method as recited in claim 1, further comprising the step of scheduling an order for analyzing the transmission lines.
- 8. The method as recited in claim 7, wherein the order includes analyzing aggressor lines before victim lines.

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9. The method as recited in claim 7, wherein the order includes analyzing lines in a neighbor-to-neighbor sequence.

10. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for analyzing a circuit with transmission lines, as recited in claim 1.

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11. A method for analyzing a circuit with transmission lines, comprising the steps of:

determining coupling factors for a plurality of transmission lines;

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based on the coupling factors, eliminating sources which influence a transmission line less than a threshold amount;

computing transmission line parameters based on the sources which influence each transmission line;

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representing each line as a coupling model to describe the line;

analyzing a transient response for each model of a transmission line by segmenting each line to perform an analysis on that line; and

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repeating the step of analyzing using waveforms determined in a previous iteration until convergence to a resultant waveform has occurred.

12. The method as recited in claim 11, wherein the step of representing each line as a coupling model includes modeling the transmission lines in terms of voltage and/or current sources.

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- 13. The method as recited in claim 12, wherein the step of modeling includes employing lumped models.
- 14. The method as recited in claim 12, wherein the step of modeling includes employing method of characteristics models.
 - 15. The method as recited in claim 11, further comprising the step of performing an analysis of the transmission lines based on an electronic form of an electrical circuit.
 - 16. The method as recited in claim 11, further comprising the step of scheduling an order for analyzing the transmission lines.
 - 17. The method as recited in claim 16, wherein the order includes analyzing aggressor lines before victim

lines.

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- 18. The method as recited in claim 16, wherein the order includes analyzing lines in a neighbor-to-neighbor sequence.
- 19. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for analyzing a circuit with transmission lines as recited in claim 11.
- 20. A system for analyzing an electrical circuit, the electrical circuit having two or more coupled lines, the system comprising:

one or more circuit models;

a transmission analysis program that selects or rejects aggressor lines based on a coupling factor value determined relative to one or more victim lines; and

- a solver that performs a circuit analysis on the circuit model using the victim lines and the selected aggressor lines but not the rejected aggressor lines.
 - 21. The system as recited in claim 20, wherein the

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victim lines are adjacent to one or more of the selected aggressors.

22. The system as recited in claim 20, wherein the transmission analysis program performs the steps of:

determining a propagated signal for each of the selected aggressor lines;

monitoring a coupling of the propagated signal on a first victim line for each of the selected aggressor lines;

monitoring a coupling of the victim line couple signal on one or more second victims;

comparing the victim line couple signal to a previous victim line couple signal on the respective victim; and

repeating until the step of comparing meets a comparison criterion.